

Amendments to the Claims

This listing of the claims will replace all prior versions, and listings, of claims in this application.

Claim 1–10 (cancelled).

Claim 11 (currently amended): A method comprising:

performing a heat-treatment on a plurality of silica gel pellets for n minutes, wherein the heat-treatment includes a temperature increasing stage of duration about $n/2$ minutes, and a temperature maintaining stage of duration about $n/2$ minutes;

wherein during the temperature increasing stage the silica gel pellets are heated from ambient temperature at between about $5^{\circ}\text{C min}^{-1}$ and about $70^{\circ}\text{C min}^{-1}$;

wherein during the temperature maintaining stage the silica gel pellets are maintained at between about 1050°C and about 1200°C ; and

wherein the heat-treatment is performed in a rotary tube furnace.

Claim 12 (previously presented): The method of Claim 11, wherein n is between about 20 minutes and about 60 minutes.

Claim 13 (previously presented): The method of Claim 11, wherein during the temperature increasing stage the silica gel pellets are heated at between about $10^{\circ}\text{C min}^{-1}$ and about $70^{\circ}\text{C min}^{-1}$.

Claim 14 (currently amended): The method of Claim 19, Claim 6, wherein the silica gel pellets have pores with a size between about 20 \AA and about 70 \AA , and a pore volume between about 0.3 mL g^{-1} and about 1.1 mL g^{-1} .

Claim 15 (new): A method for fabricating a porous silica sphere, the method comprising:

placing a plurality of silica gel pellets in a rotary tube furnace;

upon placing the silica gel pellets in the rotary tube furnace, increasing the temperature in the rotary tube furnace at between about $5\text{ }^{\circ}\text{C min}^{-1}$ and about $90\text{ }^{\circ}\text{C min}^{-1}$, until the temperature is between about $1050\text{ }^{\circ}\text{C}$ and about $1200\text{ }^{\circ}\text{C}$; and

holding the silica gel pellets in the rotary tube furnace for a predetermined time while the temperature remains between about $1050\text{ }^{\circ}\text{C}$ and about $1200\text{ }^{\circ}\text{C}$.

Claim 16 (new): The method of Claim 15, wherein the temperature in the rotary tube furnace is increased at between around $10\text{ }^{\circ}\text{C min}^{-1}$ and around $70\text{ }^{\circ}\text{C min}^{-1}$.

Claim 17 (new): The method of Claim 15, wherein the silica gel pellets have pores with a size between about 20 \AA and about 70 \AA , and a pore volume between about 0.3 mL g^{-1} and about 1.1 mL g^{-1} .

Claim 18 (new): The method of Claim 15, wherein the silica gel pellets are held in the rotary tube furnace while the temperature remains between about $1050\text{ }^{\circ}\text{C}$ and about $1200\text{ }^{\circ}\text{C}$ until the porous silica sphere has a filling density between about 0.18 g mL^{-1} and about 0.30 g mL^{-1} .

Claim 19 (new): A method for fabricating a porous silica sphere, the method comprising:

placing a plurality of silica gel pellets in a first rotary tube furnace;

increasing the temperature in the first rotary tube furnace at between about $35\text{ }^{\circ}\text{C min}^{-1}$ and about $70\text{ }^{\circ}\text{C min}^{-1}$, until the temperature is between about $400\text{ }^{\circ}\text{C}$ and about $900\text{ }^{\circ}\text{C}$; and

transferring the silica gel pellets to a second rotary tube furnace, wherein the second rotary tube furnace has a temperature between about 1050 °C and about 1200 °C.

Claim 20 (new): The method of Claim 19, further comprising:

holding the silica gel pellets in the first rotary tube furnace for between about 20 minutes and about 60 minutes while the temperature remains between about 400 °C and about 900 °C; and

holding the silica gel pellets in the second rotary tube furnace for between about 20 minutes and about 60 minutes while the temperature remains between about 1050 °C and about 1200 °C.

Claim 21 (new): The method of Claim 19, wherein the second rotary tube furnace has a temperature between about 1100 °C and about 1150 °C.